terial disease is almost nothing.

A still greater danger to every patient, however, is found in the clothing; in the skin, and all dressings which are applied to wounds. The skin is full of bacteria of the most dangerous kind; even the spotless hands of the bride are, in the eyes of the surgeon, dirty. No one can touch hands of the bride are, in the eyes of the surgeon, dirty. No one can touch a wound with ordinary clean hands without infecting it. All clothing, dressings, e.g., lint and soft linen rags, and such like, are full of bacteria of the most dangerous kind. Perhaps the most dangerous place is the space under the nails of the surgeon's hand, for the mere mechanical removal of any dirt under the nails by cleansing them does not make them clean surgically. The nails must be cut short and prepared in a way I shall mention directly, or they are full of peril to any patient into whose wound an undisinfected finger is introduced. Again, another source of infection, which is the state of of, is our instruments. Then instru-ments were washed with soap and water and were made clean to the eye; but they were covered with death-dealing bacteria which especi-ally hid in the joints and irregularities of all instruments.

All of these somewhat detailed statements lead up to a consideration of the difference between the old surgery and the new. Thirty years ago when an operation was to be performed or cident cared for we laid out our instruments, which were visibly clean, used them with hands that were as clean as those of any gentleman, and applied soft linen rags, lint and other dressings. Today we know that these apparently clean instruments, hands and dressings are covered with bacteria which produce infection and, therefore, suppuration, and frequent-ly run riot in blood poisoning, erysipely run riot in blood pois las, lockjaw and death.

How does a modern surgeon perform an operation? All bacteria can be killheat. Cold has no effect upon them, but the temperature of boiling water (212 degrees Fahr.) is sufficient to destroy them all, usually within fifteen or twenty minutes; hence, first, instruments are all boiled; and, secondly, dressings are either steeped in such solutions as have been found to destroy the bacteria, such as carbolic acid or corrosive sublimate, or other preparations, or, still better, are placed in sterilizers, that is to say, metal cylinders, which are then filled with steam, usually under pressure, so as to obtain a temperature of 240 degrees, and thus make sure of the death of the bacteria. Unfortunately our hands cannot be boiled or steamed, but the modern surgeon first uses soap and water most vigorously over his hands and arms up to the elbow. The nails are cut short and the scrubbing brush is especially applied to the nails so as to clean the fingers at their ends. Then by various means, such as pure alcohol, which is one of our best disinfectants, or solutions of corrosive sublimate, and other hands are sterilized. Rubber gloves are frequently used, so as to preclude infecion, as they can be steamed to 240 degrees. Removing at least his outer gown, which has been steamed, and so made free from bacteria. Not a few surgeons also wear sterilized caps, so that any bacteria in the hair will not be sifted in a wound, and some wear respirators of sterile gauze over the mouth and beard for the same reason. All the dressings have been sterilized by superheated steam. All the threads by which blood vessels are tied have ed. All the material for sewing up the rounds, and the needles with which they are sewn up have been similarly disinfected. The skin of the patient is also sterilized, usually the day before- must refer the reader to Prof. Osler's hand, in the same manner in which the | paper. rgeon's hands have been disinfected, There has also been discovered anand are disinfected a second time just at the moment of the operation. the case is one of accident, such as a crushed leg from a trolley car, all of the dirt is most carefully washed away with soap and water and the parts are disinfected, not only on the exterior, but also by prolonged washing with some cleansing agent in the interior of the wound, the patient being under the influence of ether, of course.

It is easily seen from such a description of a modern operation that no case can receive due care in one of our odern homes, even the best. The facilities do not exist, and hence surgeons are more declining to do operations, whether for accident or disease, in private houses, and a happy custom growing more and more in favor with the community of having all operations done and all accidents cared for in a well-equipped modern hospital. XII.-RESULTS OF MODERN SUR-

As the result of our ability to per-form operations without pain, thanks

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Find new hope and fresh energy in Milburn's Heart and Nerve Pills.

The care and worry, the a riety and activity of business life constitute a serious

drain on the nervous system. The business of this work-a-day world goes with such a rush that iron nerves even break down under the strain.



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physical forces, Middle aged men and men advanced in Middle aged men and men advanced in Middle aged men and men advanced in years are specially benefited by this remedy.

Mr. H. Hancock, of Hancock & Sadler, of the popular Iroqueis Hotel, Galt, Ont., made the following statement: "I heartily recommend Milburn's Heart and Nerve Pills to anyene needing a tenic for the nerves or requiring a medicine to build up the system when it becomes treakened and run down by too close application to business. I found the pills were just the mericine for my trouble. In fact after taking three boxes I felt so much better that now I would not be without them.

When I feel tired and worn out I take these valuable pills and find they recomp my nervous and physical strength. They feem to furnish just the elements required for reconstructing nerve tissue."

to agaesthesia, and our ability to perform operations without infection, and, therefore, almost without danger, thanks to antisepsis, the range of modern surgery has been enormously increased. Unless one has lived through the old surgery and into the new he scarcely can appreciate this widening of the field of operative surgery. Thirty years ago. in consequence of the great danger of opening the head, the chest, or the abdomen, or, in fact, of making an in-cision anywhere about the body, the surgeon never dared to interfere until he was obliged to do so. Hence, not only were many modern operations not even thought of, but in obscure cases we had to wait until time and disease developed symptoms and physical signs such that we were sure of our diagnosis, and then, knowing that terfere, we ventured to operate. Now we anticipate such a fatal termination, and in most cases can avert it. In perhaps no class of cases has the benefit from this immunity from infection and danger been shown than in the domen. Today if we are uncertain as to whether there is serious danger going on, which if unchecked will result in death, we deliberately open the one cavity or the other in order to find out the exact state of affairs. Supposing that the mischlef is trifling, or even that there is no mischief, we then know how to deal with the symptoms which have been puzzling us. So far as the exploratory operation is concerned, the patient recovers from it in a time, and, meantime, perhaps, has also been cured of the symptoms which were before so ill understood. If any serious disease is found, in the majority of cases we can cope with it suc-cessfully. Before the days of antisepsis and anaesthesia the field of operation was greatly restricted, and practically the removal of tumors, amputations and a few other operations was all that was done. Now all the then inaccessible organs are attacked with an intrepidity born of an assurance of safety. Recovery usually sets the seal of approval on the judgment of the surgeon. Thirty years ago, taking all operations together, fully one-third of our patients died, many of them often from slight operations which were followed by infection. Today, including even the far more grave operations which are now done, the general mortality will scarcely exceed five per cent, and many surgeons are able in a series of several hundred operations to save ninety-seven out of every hun

XIII.-SERUM TREATMENT. Another remarkable recent discovery the result of numerous and careful investigations in the laboratory, is a wholly new means of treatment, viz. that method which is known as orrhotherapy or serumtherapy, or the treatment of injecting certain antitoxins under the skin by a hypodermic syringe. It would lead me too far to enter into the theory upon which they were first used. Suffice it to say that in the blood of an animal that has passed through a certain disorder the liquid part contains an antidote or antitoxin If a certain amount of this is injected under the skin of an animal or man suffering from the same disorder in its incipient stages the antitoxin prevents the development of the disease. much more medical than surgical, and its results in diphtheria and other medical disorders have been perfectly marvelous. In surgery, however, less fa-vorable results have been obtained, but en either boiled or otherwise sterilizing all probability in the future we shall be able to do for some of our surgical disorders what the physician can do today for diphtheria. For the remarkable results in diphtheria I

> other means which in surgery has rendered some valuable service. From certain organs, as for instance, the thyroid gland (the gland whose largement produces goitre), we can obtain a very potent extract of great value. In cases of goitre very note-worthy results have been obtained by the administration of this thyroid extract. A number of other organs in the bodies of animals have been used to combat disorders in the human body with advantage. The chief development of both these new forms medication, however, will take place in the next century.

XIV.-INSTRUMENTS OF PRE-CISION.

Another direction in which the century has made enormous progress is in the introduction of instruments of precision. When I was a student in the early 60s instruction in microscopy was conspicuous only by its absence from our medical curriculum. Now every student who graduates is more or less of an accomplished microscopist, and carries into his practice the methods and observations which the microscope furnishes him. At the same period I remember being greatly interested in discussion which two of my teachers had as to whether it was possible to make an application accurately to the vocal chords in the larynx. Now every tyro in medicine makes such ap-plications to the larynx as a routine procedue in cases requiring it, and similar methods have been applied by the ophthalmoscope to examine the interior of the eye; the rhinoscope, to examine the interior of the nose; the otoscope, for examination of the ear, and other similar instruments for examining all the other hollow organs of the body. If I add to these the hypodermic syringe, the aspirator, which may be described as a large hypodermic syringe for suction instead of injection; the clinical thermometer, which was intro-duced in the early 60s; the homostatic forceps, for controlling hemorrhage by seizing the blood vessels and clamping them till we have time to tie them, and other instruments intended to facilitate our operative methods, it will be seen at once that the armamentarium of the modern surgeon is very different from that of his predecessor at the beginning, or even at the middle, of the

XV.-THE ROENTGEN RAY. One of those extraordinary discoveries which startie the whole world came nearly at the end of the present that time a modest professor in the University of Wurzburg, announced that he could readily see the skeleton inside the body through the flesh. Naturally, the first announcement was reeived with almost absolute incredulity; but very soon his discovery was confirmed from all sides, and it has now taken its place among the recognized facts of science. By means of certain rays, which, being of unknown nature, were called "X" rays, after the well-known matter, known mathematical x, or unknown quality, Prof. Roentgen has shown us but that almost every organ in the body can be seen aid their form and structure reproduced in pictures. The reason they can be seen is because they are all obstacles to the passage of these X-rays and so produced in pictures. of these X-rays, and so produce shadows on a sensitized photographic

If the exposure is prolonged the rays penetrate even through the bones and act upon the photographic plate, so that no shadow remains. If the rays are allowed to penetrate for a shorter time the bones show dense shadows and one can get a light shadow of the soft parts. If the exposure is still shorter, then we can recognize the

dense shadows of the muscles and the still lighter shadows of the layer of fat immediately under the skin. The heart immediately under the skin. The heart can be seen beating and its shadow is now a well-recognized feature in skiagraphs of the chest. At first it was thought impossible to discover anything inside of the bony skuil, but there are now on record nearly a score of instances in which bullets have been detected within the skull, and after trephining have been found and removed. It is a very common thing now to locate a piece of steel or other similar foreign bodies within the eyeball by the method of Dr. Sweet, or some similar method within one or two millimetres (a millimetre is one twenty-fifth of an inch.) It is now well recognized that even stones in the recognized that even stones in the kidney will throw shadows sufficiently strong for them to be recognized, and by noting their level in relation to the vetebra, we can tell precisely in what part of the kidney to make the incision in order to find and remove them. It has happened to myself and many other surgeons to cut down upon a kidney, believing that there was a stone in the kidney, only to find that we had been misled by the apparently clear symptoms of such a body. In future no such mistakes should be made by any surgeon within reach of a skillful skingrapher. Unfortunately, gall stones and numerous other foreign bodies, vegetable sub-stances, such as beans, corn, wood, etc., being as transparent to the X-rays as are the soft parts, are not revealed by means of this new method of investi-gation, but cavities in the lung, abscesses in bone and similar diseases which produce thinning of the lung. bone and other such organs, and so lighten instead of deepen the shadows. can now be recognized by means of light spots in the pictures as well as others by means of a shadow.

I spoke a moment ago of the need a "skillful" skiagrapher, for it must remembered that there may be

the same difference in the personal skill and, therefore, in the reliability

of the results, in skiagraphy as there is in photography. A poor photo-grapher will get very different results from a skillful one, even if he uses precisely the same quality of plates and precisely the same camera. Personal skill and experience in the skiagrapher is, therefore, one of the most important elements in success. It must be remembered also that the X-rays in not a few cases may mislead us. I have, personally, fractured a bone on account of deformity, and taken an X-ray picture immediately after the operation, the picture showing not the slightest evidence of a fracture, which I absolutely knew existed. Moreover, foreign bodies found on the outside of the person may mislead us, as for exthe metal part of suspenders, a coin in one's pocket, and such like. They look in the picture as if they were inside rather than outside the body, and any article the shape or size of which would not reveal its nature might easily be mistaken for a foreign body within the patient. Therefore, in many cases only an expert can de termine precisely what the skiagraph means. I especially mention this, because there is tendency at present to utilize skiagraphs in court in order to is an evidence of malpractice. Such pictures always need an interpreter in order to judge correctly of meaning. It is precisely as if the jury were asked to look through a microscope. I have been myself accustomed to use the microscope for 30 years, but there are many instances even yet in which I am obliged to ask a patholo-gist or bacteriologist what I really am looking at in the microscope. While one may make a mistake of small moment in some cases, yet if a man's life or liberty or purse is at the mercy of a jury which does not know how to interpret a skiagraph and may, therewrong" as Prof. Lincoln, my old teacher in Latin, used to call many of our translations, it will be a very serious matter and lead to gross injustice. XVI.—CITY AND VILLAGE HOSPI-

Another great improvement in our means of caring for our surgical patients is the establishment of hospitals all over the land. These, happily, are not limited to our great cities, but in every country town, and not a few large villages, small but well-equipped and well-managed hospitals have been established, which have done incolouble good. It is not have done incalculable good. It is not too much to say that every city or town establishing such a hospital is repaid a hundredfold.

XVII.-TRAINED NURSES. The trained nurse has, fortunately, come to stay. In fact, our antiseptic methods as above described have made the trained nurse indispensable. The old nurse who by many clumsy experiments on her patients had obtained a certain rule-of-thumb knowledge of the care of the sick, can no longer assist in a surthe sick, can no longer assist in a sur-gical operation or properly care for any surgical patient. The modern nurse must of necessity be a well-educated, well-trained woman, knowing thoroughly modern antiseptic methods, and on the alert to observe every symptom of im-provement and every signal of danger.

Without a well-trained nurse it is impossible at the present day properly to care for any serious surgical case, and I gladly bear witness to the intelligence, fidelity and skill of scores of nurses who have assisted me, without whom I should have felt as one blade of a scissors without its follow.

XVIII.-SPECIAL OPERATIONS. (a) Amputations and Compound Frac-

tures.

Having now traced the different modes of thought which have aided surgical progress in the present century and the different means of investigation, let usturn finally to the progress in individual operations. As to amputations and compound fractures, I have already indicated the immense improvements which have followed the introduction of anaesthesia and especially of antisepsis, which have brought the mortality of amputations down from 50 per cent or 60 per cent to 10 per cent, or 15 per cent, and in compound fractures, once so dreaded, since the mortality was not infrequently as high as two out of three, to a relatively insignificant danger. tures. insignificant danger. (b) Tumors,

In no department, perhaps, has the introduction of antisepsis and the use of catgut and silk ligatures after the antiseptic method, brought about a greater improvement than in operations for tumors. The startling reluctance of Sir

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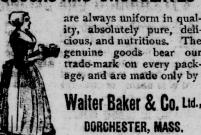
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Cooper to operate on King George IV. for so simple and small a tumor as a wen, lest erysipelas might follow and even destroy his life, is in marked contrast with the success, and, therefore, the boldness, of modern surgeons. Tumors in all parts of the body, whether they be external or internal whether they inthe surgeon is confronted with adhesions to the jugular vein, the carotid artery and the nerves of the neck and of the arm, with the greatest impunity. Such an operation not uncommonly lasts from three-quarters of an hour to an hour and and involves often the removal of two or three inches of the jugular vein and many of the large nerves, the re-moval of which a few years ago would have been deemed an impossibility.

(c) Goftre. One of the most striking instances of progress is operations on goitre. Writing in 1876, the late Professor Samuel D. Gross noted it as something remarkable that Dr. Green, of Portland, Me., had removed seven goitres with two deaths, and the late Dr. Maury, of Philadelphia. had exlate Dr. Maury, of Philadelphia, had ex-tirpated two goitres with one death. In marked contrast to this Professor Kocher, of Berne, in 1895 reported 1,000 cases, of which 870 pere non-cancerous, and he lost of these last but eleven cases, or a little over 1 per cent. In 1898 he re-ported 600 additional cases, with only one death in the 556 non-cancerous cases, or a mortality of 0.1 per cent. It will be seen, therefore, that an operation which a few years ago was excessively fatal a few years ago was excessively fatal has become, one might say, almost per-

(d) Surgery of the Bones. Operations on bones apart from amputations show also a similar improvement. In cases of deformity following fracture, we now do not hesitate to cut down upon the bone and refracture it or remove the deformed portion, join the ends together, dress the part in plaster of paris to secure fixation, and have the patient recover with little or no fever and no suppuration. Above the elbow a large nerve runs in a furrow in the arm and no suppuration. Above the efflow a large nerve runs in a furrow in the arm bone, and in case of fracture this is liable to be torn and a portion of it destroyed. The result of it is paralysis of all the muscles on the back of the forearm from the elbow down, and consequent inability to extend either wrist or fingers, making the head almost useless. the hand almost useless. In a number of cases the nerve has been sought for and found, but the ends have been too far apart for successful union and sewnot hesitate now, in order to bring the two ends of the nerve together, to remove one or two inches of the arm bone, wire together the two ends of the shortened bone, sew the now approximated ends of the shortened nerve together, put the arm in plaster, and as soon as the wound is healed, with appropriate later treatment to the muscles, we can obtain in a reasonable number of cases a per-fect, or almost perfect, union of the nerves, with a re-establishment of the usefulness of the hand. In very many cases the bones are de-formed as a result of rickets, and in some formed as a result of rickets, and in some cases in consequence of hip joint disease. In such cases the leg is crooked or flexed, and cannot be used for walking. Such cases of stiff joints and crooked legs are now operated on, one might say, wholesale. At the International Medical Congress, held in Copenhagen in 1884, Professor MacEwen, of Glasgow, reported 1,800 operations on 1,267 limbs in 704 patients, in which he had, sawn or chiseled through the bones so as to fracture them, placed them in a straight position, and after a few weeks the leg or arm made straight. The whole number of operations was successful, excepting five operations was successful, excepting five cases, and even these deaths were not due to the operation, but to some other disorder, such as an unexpected attack of pneumonia, diphtheria or scarlet fever.

(e) Surgery of the Head and Brain. In the surgery of the head we find one of the most remarkable illustrations of the modern progress of surgery. Fractures of the skull have been the most dangerous and fatal of accidents until within a short time. Of course, many of them even now must necessarily be fatal from the reidenged in the state of them even now must necessarily be fatal from the widespread injury to the bones and the brain. But our modern methods by which we can disinfect the cavities of the ear, the nose and the mouth, with which these fractures often communicate and through these avenues become infected, are so successful that such cases, instead of being looked upon as hopeless, are in a majority of cases followed by recovery. Even gunshot wounds in which the ball may remain inside the cavity of the head are main inside the cavity of the head are successfully dealt with, unless the injury produced by the ball has been necessarily fatal from the start. Fluhrer, of New York, has reported a very remarkable case of gunshot wound in which the ball entered at the forehead, traversed the entire brain, was defeated traversed the entire brain, was deflected at the back of the skull and then purthe brain. By trephining the skull the brain. By trephining the skull at the back of the head he found the ball, passed a rubber drainage tube through the entire brain from front to back and had the satisfaction of seeing the patient

had the satisfaction of seeing the patient recover.

Until 1884 it was excessively difficult to locate with any degree of accuracy a tumor within the brain, but in that year Dr. Bennett, of London, for the first time accurately located a tumor within the skull without there being the slightest evidence on the extector of its existence, much less of its location. Mr. Godlee (surgeons in England are not called "Dr." but "Mr.") trephined the skull at the point indicated, found the tumor and removed it. True this patient died, but the possibility of accurately locating a tumor of the brain, reaching it and removing it was now demonstrated, which is far more important to humanity at large than whether this individual patient survived or not. Since then there has been a very large number of tumors successfully removed. The latest statistics are those of Von Bergmann, of Berlin, in 1898. He collected 273 operations for brain tumors, of which 169 (61.5 per cent) list.

This is by far the best bercentage of removing them the mortality rate will be further lessened. The latest with the constant improvement in our "ability to bicate such tumors and in our methods of removing them the mortality rate will be further lessened. The latest will be further lessened as every large on the late of the containt improvement in our "ability to bicate such tumors and in our methods for removing them the mortality rate will be further lessened. The latest will be further lessened. The latest is a such tames and in our further lessened as every lates will be further lessened. The latest will be further lessened as every lates will be further lessened. The latest will be further lessened as lates of the extent number in the latest will be further lessened. The latest will be further lessened as every latest will be further lessened as every latest will be further lessened. The latest will be further lessened as latest of the lat recover.
Until 1884 it was excessively difficult

other similar disorders, should be allowed to pass from under the most skilled treatment until a cure is effected. This is the commonest cause of abscess of the brain. The inflammation in the ear which begins in the soft linkness of the cavities of the ear finally extends to the bone, and after years of intermittent discharge will suddenly develop an abscess of the brain, which, if not relieved, will certainly be fatal. Prompt surgical interference alone can save life, and happily, though we cannot promise recovery in all, a very large percentage of success is assured.

In epitepsy as a result of injuries of

The second secon

of success is assured.

In epilepsy as a result of injuries of the head, in a moderate number of the head, in a moderate number of cases we can obtain a cure of the disease by operation, but in the great majority of cases, and, one may say, practically in all of the cases in which the epilepsy originates "of itself," that is to say, without any known cause, it is useless to operate, certainly at least after the epileptic habit has been formed. Possibly were operation done at the very beginning we might obtain better results than experience thus far

the very beginning we might obtain better results than experience thus far has shown us is possible.

Very many cases of idiocy are constantly brought to surgeons in the hope that something can be done for these lamentable children. Unfortunately, at present surgery holds out but little hope in such cases. In a few exceptional instances it may be best to operate, but a prudent surgeon will decline to do any operation in the vast majority of cases. (f) Surgery of the Chest and Heart.

The chest is the region of the body which has shown the least progress of all, and yet even here the progress is very marked. When, as a result of pleurisy, fluid accumulates on one side of the chest, even displacing the heart, we now do not hesitate to remove an inch of two of one of the ribs and they workly drain. of one of the ribs and thoroughly drain the cavity, with not only a reasonable, but in a majority of cases, one may almost say, a certain prospect of cure. We have also entered upon the road which will lead us in time to a secure surgery of the lung itself. A few cases of ab-scess, of serious gunshot wound, attend-ed by otherwise fatal hemorrhage, and in all parts of the body, whether they be external or internal, whether they involve the wall of the chest or are inside the abdomen, are now dealt with with almost perfect safety. Anaesthesia has made it possible to dissect out tumors in made it possible to dissect out tumors in ext century will see, I have no doubt, brilliant results in thoracic surgery.

One of the most striking injuries of the One of the most striking injuries of the chest has recently assumed a new importance, viz., wounds of the heart itself. In ance, viz., wounds of the heart itself. In several instances an opening has been made in the bony and muscular walls of the chest, and a wound of the heart itself has been seved up. The number is as yet small, but there have been several recoveries, which lead us to believe that here, too, the limits of surgery have by no means been reached.

(g) Surgery of the Abdomen. Of the abdomen and the pelvis a very different story can be told. These ties might almost be called the ground of the surgeon, and the remark-able results which have been obtained warrant us in believing that even greater results are in store for us in the future. In the earlier part of this article I spoke of the advantages of the study of pathological anatomy of the diseased condition of individual organs. Perhaps no better illustration of the value of this can be given than in the study of appendicitis. This operation has been one of the contributions to the surgery of the world in which America has been foremost. While there were one or two earlier papers, Willard Parker, of New York, in 1867 first Willard Parker, of New York, in 1867 first made the profession listen to him when he urged that abscesses appearing above the right groin should be operated on and the patient's life saved. But it was not until Fitz, of Boston, in 1888, published his paper, in which he pointed out as a result of a study of a series of postmortem examination of persons dying from such an abscess above the right groin, that the appendix was the seat of the trouble, that this so frequent disease the trouble, that this so frequent diseas was rightly understood and rightly treat

ed.
As the result of the facts gathered in As the result of the facts gathered in his paper, the treatment was perfectly clear, not only that we ought to operate in cases of abscess, but that in the case of patients suffering from two or more attacks, and often from even one attack of appendicitis, that the appendix should be removed to prevent such abscess. The mortality in cases in which such an abscess has formed is, perhaps, quite 20 per cent, or 25 per cent, whereas, if patients are operated on "in the interthat is to say, when the abdominal cavity is free from pus, the mortality is scarcely more than 2 per cent, and may be even less than that. Surgeons are often asked whether ap-pendicitis is not a fad and whether our

grandfathers ever had appendicitis, etc As a matter of fact, in my early profes-sional days, appendicitis was well known, But it was called "localized peritonitis," or localized "abscess," but while the disor localized "abscess," but while the dis-ease was very frequent, its relation to the appendix was not recognized until from his study of its pathology an American pointed it out. Even now European sur-geons, with a few exceptions, are not alive to the need for operation in such cases

There is little doubt that the great pre-valence of grip during the last few years has increased the number of cases of appendicitis, both of them being catarrhal conditions of the lining membrane of the same continuous tract of the lungs, the mouth, the stomach and the intestines.

One of the most fatal accidents that can befall a patient is to have an ulcer of the stomach perforate so that the contents of the stomach escape into the general ab-dominal cavity. Until 1885 no one ven-tured to operate in such a case. In an inaugural dissertation by Tinker, of Philadelphia, 232 cases of such perforat-ing ulcers of the stomach were reported, of which 122 recovered a mortality of 48 81 of which 123 recovered, a mortality of 48.81 per cent. In not a few of them if prompt instead of late surgical help had been invoked, even a still better result would have been reported. If no operation had been done the mortality would have been 100 per cent 100 per cent. In cancer of the stomach itself we are

able, as a rule, to make a positive diagnosis only when a perceptive tumor is nosis only when a perceptive tumor is found. By that time so many adhesions have formed and the infection has involved the neighboring glands to such an extent that it is impossible to remove the tumor, but the statistics even here are not without encouragement, at least for comfort, if not for life. In many cases the tumor has been removed and the stomach and intestine joined together by various devices, and the mortality, which is necessarily great, has been reduced by Czerny to 12 per cent, and by Carle to 7 Czerny to 12 per cent, and by Carle to 7 per cent. Even the entire stomach has been removed in several cases, and recovery has followed in about one-half. Most of these patients, however, have died from a return of the disease. When, as a result of swallowing caustic lye or other similar substances, the gullet (the oesophagus) becomes contracted to such an extent that no food can be swallowed, we now establish an opening into the stomach through which a tube is inserted at mealtime, and the patient has his breakfast dinner and supper poured his breakfast, dinner and supper poured into his stomach through the tube. If the stricture of the oesophagus is from malignant disease, of course, this only prolongs life by preventing a horrible death by starvation, but in cases in which it is non-malignant life is indefinitely prolonged. The mortality of such

# Why a Cold "Hangs On."

Stop and think a minute. The tickling in the throat, the tight feeling in the chest and that racking cough are only the results of the cold, not the cold itself. To apply a soothing medicine to the irritated membrane does not cure the cold. The lungs, throat and nose are nature's exits for the poison, but the cold is in the system.

### Shiloh's Consumption Cure will Cure a Cold.

It will cure a cold when it has developed so far as to be Consumption. "Shiloh's" supplies the blood with the vitality necessary to kill the germs and drive the dread disease out of the system.

Why keep on treating the results of the disease. Take "Shiloh" and you will cure the diesase itself, and leave the system strong to resist future attacks. "Shiloh" is guaranteed to cure. If you are dissatisfied after using two thirds of the bottle take the remainder back to your druggist, and he will refund the whole of the purchase money.

James South of Vancouver, writes:

"S. J. Wells & Co., Toronto—I suffered for years from a cough and tried scores of remedies. Occassionally it would disappear for a few days, but would inevitably return-worse than before-1 tried Shiloh's Consumption Cure and from the first day my cough was relieved and finally it left me. For over eleven months I have been quite well and I never tire of praising your grand medicine." Sold in Canada and United States 25c., 50c., and \$1.00 a bottle. In England 13. 2d., 2s. 3d. and 4s. 6d.

one of the safest operations of surgery is to open the abdomen and the gall blad-der and remove this menace to life, and the great majority of such patients recover without any untoward symptoms. Even large abscesses of the liver, and, what is still more extraordinary, large tumors of the liver, are now removed successfully. A year ago all of the reported cases were collected which had been operated from 1888 to 1898, 76 in number. The termination in two cases was unknown but of the other 74 68 was unknown, but of the other 74, 63 recovered and 11 died, a mortality of only

14.9 per cent.

The surgery of the intestines by itself is a subject which could well occupy the entire space allowed to this article. I can only in a very supericial way outline what has been done. Hernia, or rupture, is a condition in which through an opening in the abdominal wall a loop of the bowel escapes. If it could be replaced and kept within the abdomen by we could do till within the last ten or fifteen years. The safety and the painlessness of modern surgery which has resulted from the introduction of anaesthesia and antiseptics are such that now no person suffering from such a hernia, unless for some special personal reason, should be allowed to rely upon a truss. which is always a more or less treacherous means of retaining the hernia. We operate on all such cases now with impunity. Coley has recently reported a punity. Coley has recently reported a series of 639 cases, all of which recovered with the exception of one patient. Even in children, if a truss worn for a reasonable time, a year or so, does not cure the rupture, operation affords an admirable prospect of cure.

Every now and then a band forms inside the abdomen, stretching like a string from one place to another. If a loop of bowel slips under such a band, it can be easily understood that total arrest

easily understood that total arrest the intestinal contents ensues, a con-tion incompatible with life. There are other causes for such "intestinal obstruction," which are too technical to be described in detail, but this may be taken as a type of all. It is impossible, of course, to tell before opening the abdomen precisely the cause of the obstance struction the majority of cases, and if the operation has not been too long delayed the prospect of entire recovery is good. The mortality which has followed such operations has been considerable. and by this I mean, say, over 20 per cent; but a very large number of the fatal cases have been lost because the operation has been delayed. In fact, it may be stated very positively that the mere opening of the abdomen to find out precisely the nature of any disease or precisely the nature of any discusses injury is attended with but little danger. If further surgical interference is required the danger will be increased proportionately to the extent and gravity of such interference. But "exploratory operations," as we call them, are now undertaken constantly with almost uniform success.

uniform success. Even in cancer of the bowel we can prolong life if we cannot save it. Can-cer of the bowel sooner or later produces "obstruction," and so destroys life; but in such cases we can either make a perin such cases we can either make a per-manent opening in the bowel above the cancer and so relieve the constant pain and distress which are caused by the obstruction, or in a great many cases we make an opening in the bowel above the make an opening in the bowel above the cancer and another below it, and by uniting the two openings, if I may so express it, "sidetrack" the contents of the bowel. If the cancer has no adhesions and the patient's condition allows of it, we can cut out the entire portion of the bowel containing the cancer, unite the two ends and thus receptablish the the two ends and thus re-establish the continuity of the intestinal canal. As much as eight feet, nearly one-third of the entire length of the bowel, have been removed by Shepherd, of Montreal, and yet the patient recovered and lived a healthy life.

a healthy life. Similarly in gunshot wounds, stab wounds, etc., involving the intestine, the modern surgeon does not simply stand by with folded hands and give opium and morphine to make the patient's last hours or days relatively comfortable, but he opens the abdomen, finds the various perforations, closes them, and recovery has followed even in cases in which as many as seventeen wounds of the intestine have been produced by a

the intestine have been produced by a gunshot wound.

The kidney, until thirty years ago, was deemed almost beyond our reach, but now entire volumes have been written on the surgery of the kidney, and it is, one might say, a frequent occurrence to see the kidney exposed, sewed fast if it is loose, opened to remove a stone in its interior, drained if there be an abscess, or if it be hopelessly diseased it is removed in its entirety. The ed it is removed in its entirety. The other kidney, if not diseased, become equal to the work of both. Of the pelvic organs, it would not be becoming to speak in detail, but one operation I can scarcely omit; namely, ovariotomy. One of my old teachers

brother, was among the first ovarioto-mists is this country who placed the a very distinguished physician in 1862, in a lecture to his medical class, denounce such men as "murdcrers"; but today such men as "murdcrers"; but today how differently does the entire profesof condemning the surgeon because he did remove such a tumor, the profession would condemn him because he did not remove it. The operation had its rise remove it. The operation had its rise in America. Ephraim McDowell, of Kentucky, in 1809 first did the operation which now reflects so much credit upon modern surgery. The mortality of the Atlees was about one in three. Now, owing to the immense improvement introduced by the antiseptic methods, the deaths in competent bards over the over deaths in competent hands are not over 5 per cent, or even 3 per cent. to stop with the story very imperfectly

The limits of this article compel me told, but yet, perhaps, it has been sufficient in detail to show somewhat of the astonishing progress of surgery within the century, but especially within the last quarter of the century.

About two decades ago one of the forement surgeous of London Mr. foremost surgeons of London, Mr. Erichsen, said in a public address that "surgery had reached its limits." How short was his vision is shown by the fact that surgery at that time was just at the beginning of its most brilliant

We have reached in many respects, we have reached in many respects, apparently, the limits of our success, but just as anaesthesia and antiseptics and the Floentgen rays have opened new fields to us wholly unsuspected until they were proclaimed, so I have no doubt that the twentieth century will see means and methods deviced which will with and methods devised which will put to shame the surgery of today as much as the surgery of today puts to shame that of thirty years ago, and still more of a century ago. The methods by which this will be attained will be by the more thorough and systematic study of discess and injury so as to better our pharmaceutical means to perfect our antisepties and possibily to introduce other methods of treatment; but, above all, we shall obtain progress by the ex-act experimental methods of the laboratory. We can never make progress except by trying new methods. New methods must be tried either on man or on animals, and as the former is not allowable, the only way remaining to us is to test all new methods, drugs and applications first upon animals. He who restricts, and, still more, he who would restricts, and, still more, he who would abolish our present experiments upon animals, is in my opinion, the worst foe to the human race, and to animals as well, for they, as well as human beings, obtain the benefit derived from the meth-ods. He may prate of his humanity, but he is the most cruel may alive. he is the most cruel man alive.

Rich, warm, healthy blood is given by Hood's Sarsaparilla, and thus coughs, colds and pneumonia are prevented. Take it now.

Dear Sirs,-I was for seven years a sufferer from Bronchial trouble, and would be so hoarse at times that I could scarcely speak above a whisper. I got no relief from anything till I tried your MINARD'S HONEY BAL-Two bottles gave relief and six bottles made a complete cure. I would heartily recommend it to anyone suffering from throat or lung trouble

J. F. VANBUSKIRK. Fredericton.

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